NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory | *Friday, August 19, 2005* | *Vol. 30, No. 33*

NIF surpasses shot milestone

JOHN GRINOLD/NIF

Researchers peer into the NIF target chamber, with its newly installed protective wall. The laser recently surpassed another milestone – on its way to beginning ignition experiments in 2010.

The Lab's National Ignition Facility (NIF) has passed another milestone.

On the evening of Aug. 9, two shots achieved energy output that surpassed the highest levels ever reached on LLNL's now-deactivated Nova laser, or the 60-beam OMEGA laser at the Laboratory for Laser Energetics at the University of Rochester.

NIF recently commissioned its second "quad," or group of four beams. The combined output from the eight beams, known as a bundle, totaled 136.5 kiloJoules (kJ), surpassing its Main Laser Operational Qualification bundle goal of 125 kJ.

The energy came in the form of infrared light, and was measured in an instrument called a calorimeter. This and other diagnostics showed that beam quality, as well as total

See **NIF,** *page 4*

Fusion energy physicists receive $1.8 million grant to study plasma kinetics

By Anne M. Stark

NEWSLINE STAFF WRITER

Plasma, a phase of matter distinct from solids, liquid or gases, is often referred to as the fourth state of matter.

And in this state lies a series of questions as to how the collisions of ions, electrons, and neutral particles within plasma influence important plasma phenomena, such as the transport of heat and particles, and collective effects (waves, instabilities and turbulence).

Andris Dimits and Bruce Cohen are looking for the answers.

The two Laboratory fusion energy physicists along with collaborators from UCLA recently received a $1.8 million grant over three years from the Department of Energy's Office of Science to delve into plasma kinetics.

Dimits and Cohen plan to develop greatly improved numerical algorithms – a step-by-step computational problem-solving procedure – that will enable key problems in both magnetic fusion and inertial confinement fusion research to be addressed.

The two will work with UCLA Professor Russel Caflisch, who has succeeded in advancing state-of-the-art algorithms for gas dynamics. Dimits and Cohen will work to apply Caflisch's approach to plasma kinetics.

See **MATH GRANT,** *page 3*

Pitz and Westbrook of CMS earn auto society's award for diesel engine research

By Linda Lucchetti

NEWSLINE STAFF WRITER

Lab scientists William Pitz of the Chemistry and Chemical Engineering Division and Charles Westbrook of the Chemistry and Materials Science Directorate were part of a team that received the Society of Automotive Engineers (SAE) 2003 Arch T. Colwell Merit Award.

The award was given for the paper "Effects of Oxygenates on Soot Processes in DI Diesel Engines: Experiments and Numerical Simulations," that they co-authored with Charles Mueller, Lyle Pickett and Dennis Siebers of Sandia National Laboratories. The paper was one of 11 honored at the SAE 2005 World Congress in Detroit in April.

Westbrook acknowledged the importance of receiving the award: "The SAE publishes about 2,500 written technical papers each year, and they select approximately 10 each year for special recognition as representing the most innovative and original work."

He went on to say that the competition is tough. Those contributing the overall 2,500 papers include leading engineers, chemists and others from industry, national labs and universities

See **SAE,** *page 3*

Security experts warn of threats on, off the job

By David Schwoegler

NEWSLINE STAFF WRITER

An attentive crowd packed the Bldg. 123 auditorium last week for an engaging unclassified employee briefing entitled "Employee Security — The Local Threat."

Lab Services Associate Director Dave Leary introduced the event, explaining to employees "…we live in what is essentially a safe world. But it does contain people who intend to do us harm." The employee approach that Leary advocates is "…involvement in our own safety and security."

Presentations by three local security experts showed the resources and agencies that are available, or that are already working to mitigate local threats to employees in their workplace, work-lives and personal lives, as well as in their communities. Employees were assured that they are not on their own facing threats of assault, domestic violence, "eco-tage," stalkers, terrorists, cyber crooks and crank callers.

Pam Poco, Operations Security and Program Support division leader, explained the protections that OPSEC and the UC Police offer to employees, their spouses, partners and families, with a special focus on operations security and law-enforcement threat mitigation.

JACQUELINE MCBRIDE/NEWSLINE

Mark Graff discusses cyber security risks while Pam Poco looks on.

Poco explained that we have two resident UC police department units on site, including five criminal investigators and a full-time threat

See **SECURITY,** *page 4*

LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 3

Wednesday 24

The Employee Assistance Program's Caregivers Support Group will host an Alzheimer's presentation today from noon-1 p.m. in the Bldg. 543 auditorium. John and Bea Gorman, founders of the Alzheimer's Aid Society of Northern California, will present **"A Common Sense Approach to Alzheimer's Caregiving."** The Gormans will provide an overview of the disease and will share essential information regarding techniques in caregiving for a family or friend with Alzheimer's.

• • •

The LLNL/Sandia **Cancer Awareness Campaign** will present "Colon Cancer Prevention and Treatment," by Pleasanton oncology surgeon, Dat Tien Nguyen today from noon-1 p.m., in the Sandia CRF building. The talk will focus on information regarding causes of colon cancer and recent medical advances in colon cancer treatment. For more information, contact Mark Costella, 2-8999, or Cathy Kaplan, 3-6555.

Thursday 25

The **Living Well Fall Speaker Series** kicks off today with "Career Fitness 101: Keeping Your Career in Shape" from noon–1 p.m. in the Bldg. 361 auditorium. In "Career Fitness 101" participants will learn about career self-reliance concepts, the players involved in the career development process, techniques for managing your career and career development tools.

• • •

Human Performance Improvement (HPI) is a process used to reduce accidents and injuries and is strongly supported by the University of California. Today or Aug. 26, 8 a.m.-noon; "HPI Principles for Managers and Team Leaders," (SE5001). Today or Aug. 26, 1-5 p.m.; "HPI Tools for Managers and Team Leaders," (SE5002). Both courses will be held in Trailer 5475, room 1145, Discovery Room. To enroll, visit the LTRAIN Website: http://www-r.llnl.gov/es_and_h/ltrain/. For questions or additional information about the course, contact Debbie Dala at 2-9879 or dala2@llnl.gov.

UTel LLTN Lawrence Livermore Television Network

LAB TV broadcasts

A special event: SAFE film festival through Aug. 25

TUES. **23**	Spy Tech: The Real 007
WED. **24**	Spy Tech: The Deadly Game
THURS. **25**	Doing the Right Thing, When It's the Hardest Thing to Do

These programs will appear on Lab TV Channel 2, at 10 a.m., noon, 2, 4 and 8 p.m. and 4 a.m.

Governor's adviser gets a look at Lab programs

JACQUELINE MCBRIDE/NEWSLINE

From left, Executive Officer Ron Cochran; Katherine Whelan, special adviser to Gov. Arnold Schwarzenegger; Christie Schomer, Lab's congressional liaison; and Associate Director-at-Large George Miller stand in front of the NIF target chamber during a tour. Whelan visited the Laboratory on Wednesday and received briefings on homeland security activities, including bioterrorism, countering nuclear terrorism and emergency response planning.

Security advises employees to protect badges while off site

Don't keep valuables in your car — including your badge. There's been an increase in the number of Laboratory badges that have been lost or stolen because they were kept in unattended vehicles.

According to Cindy McAneney, division leader for the Lab's Security Department Personnel Security Division, many of these badges were locked inside the vehicle-often out of sight.

But an increase in vehicle thefts and auto burglaries are contributing to the number of lost or stolen badges reported.

In addition, many employees lose their wallets and contents during these crimes because they were left in an unattended vehicle. McAneney said the contents of wallets are seldom recovered and fuel the current rash of identity theft crimes that can result in months of grief for the victims.

"Although there is no rule preventing employees from keeping their badges in unattended vehicles, the prudent OPSEC approach is not to do it," she said. "Keep your badge in your pocket or purse when you're off site at lunch or during your commute, ensuring not to display it in public. And bring your badge inside your home when you arrive there, that way you can avoid becoming both a victim and a statistic."

IN MEMORIAM

Tom Slone

Tom Slone, a Laboratory employee for almost 17 years, died July 30.

Slone earned a bachelor's degree from Humboldt State University in business administration and a master's from UC Berkeley.

He worked in public accounting for more than 10 years prior to joining the Lab. He was a Navy flight officer during the Vietnam War.

Slone joined the Lab in 1988 as a principal accountant for the chief financial officer (CFO). He became a senior systems analyst in 1998 and transferred to Administrative Information Systems (AIS). As an accountant, he developed information systems reports and created many data marts that made reporting for CFO business functions easier to perform.

Slone had many interests including a CPA service, riding his horse, leading trail rides and introducing the joys of horsemanship to many new friends.

A service and celebration will be held for Slone on Sunday, Aug. 28, at 7 p.m. at Diablo Ranch, 1453 Northgate Road, Walnut Creek. For directions, go to www.diabloranchevents.com.

No classified ads this week; advertisements will reappear in next Friday's *Newsline*

Due to space restrictions in this week's *Newsline*, the classified ads are available only on the Web, located at https://www-ais.llnl.gov/newsline/ads/ or http://www.llnl.gov/pao/employee/. Ads must be submitted by close of business Tuesdays in order to appear that week in *Newsline* or on the Web.

Newsline

Newsline is published weekly by the Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

Contacts:

Media & Communications manager: Lynda Seaver, 3-3103

Newsline editor: Don Johnston, 3-4902

Contributing writers: Bob Hirschfeld, 2-2379; Linda Lucchetti, 2-5815; Charles Osolin, 2-8367; David Schwoegler, 2-6900; Anne M. Stark, 2-9799; Stephen Wampler, 3-3107. For an extended list of Lab beats and contacts, see http://www.llnl.gov/pao/contact/

Photographer: Jacqueline McBride

Designer: Denise Kellom, Julie Korhummel, 2-9709

Distribution: Mail Services at LLNL

Public Affairs Office: L-797 (Trailer 6527), LLNL, P.O. Box 808, Livermore, CA 94551-0808

Telephone: (925) 422-4599; Fax: (925) 422-9291

e-mail: newsline@llnl.gov or newsonline@llnl.gov

Web site: http://www.llnl.gov/pao/

Around the Lab

DOE to review Lab's Classification Office

The Department of Energy's Headquarters Office of Classification and Information Control will review the Lab's classification program on Aug. 23 and 24. Participation in this process will require the Classification Office to delay document reviews until late in the afternoon both days.

The Lab's Classification Office will find ways to address emergencies, but some delays may result from qualified advisers' involvement with the review team.

Additionally, the headquarters team will visit the workplace to interview more than 60 Lab employees, most of whom have classification responsibilities. Employees interviewed should remember that all information (including e-mails) leaving their control may be subject to review. In many cases, the review may focus on knowledge, gained from Laboratory training, that the information employees release has been reviewed in the past, and is clearly unclassified.

SAE

Continued from page 1

around the world.

Pitz said the recognized work has been the result of "a productive and ongoing collaborative effort" with the Sandia researchers. The experiments and investigations were performed at Sandia, while the computer simulations were done at LLNL.

Westbrook previously received the 1991 SAE Memorial Award and the Arch T. Colwell Merit Award in 1999 for his studies of hydrocarbon autoignition and engine knock.

Westbrook said that LLNL's computing resources have been used for the past 30 years to simulate chemical kinetics of hydrocarbon oxidation in automotive environments. He and Pitz are currently using chemical kinetic modeling to study the effects of different types of fuels in automotive engines.

The SAE promotes basic science and engineering to advance the overall automotive and transportation industries and supports training of students to become practicing automotive engineers.

The award, established in 1965 and named for the late Arch T. Colwell, who served SAE in many capacities for nearly 50 years, annually recognizes the authors of papers of outstanding technical or professional merit. Papers are judged primarily for their value as new contributions to existing knowledge of mobility engineering.

MATH GRANT

Continued from page 1

"In plasma physics, there's a need for something similar to what Caflisch did," Dimits said. "But plasmas have enough differences that it's not a trivial thing to just apply what UCLA has done."

Cohen said the work will have far-reaching applications, from laser fusion simulations to magnetic fusion.

"This represents a significant improvement in algorithms," he said. "It will have a lot of impact on a class of problems that are extremely difficult to solve.

The Livermore-UCLA research proposal was one of 13 to receive funding. Overall, the Office of Science Multiscale Mathematics program gave out $20 million to 17 universities and eight DOE national laboratories.

The DOE program is aimed at breaking though the current barriers in understanding complex physical processes that occur on a wide range of interacting length and time scales.

The researchers will develop and apply new multiscale mathematics algorithms and analysis to support Office of Science research missions.

For Dimits and Cohen, that means capturing key phenomena of plasmas that are difficult to do with present-day methods.

"The measure of success will be a large gain in efficiency," Cohen said.

"We hope to bring down the cost and increase the accuracy," Dimits said.

Summer Student Calendar

Seminars, panels and other activities are winding down for summer student employees. Go to the Student Bulletin Board at http://education.llnl.gov/sbb/for details and to register for events.

Tuesday 23

ICST Seminar: "Scientific Discovery Through Advanced Computing," by David E. Keyes, acting director, Institute for Scientific Computing Research. 1 p.m. Bldg. 219, room 163. Contact: Tiffany Ashworth, 4-3491.

Wednesday 24

Seminar: "KDP Rapid Crystal Growth," by Marcus Monticelli, NIF. 1:30 –3 p.m., Bldg. 482 auditorium. Tour of KDP facility to follow the talk. Limited space is available. Contact: Dustin Riggs, 2-5780.

ICST Seminar: "Conflict Simulation," by John Goforth and Akira Haddox, NAI Computing Applications. 2:30 p.m., Bldg. 219, room 163. Contact: Tiffany Ashworth, 4-3491.

Tuesday 30

ICST Seminar: "Multigrid Methods," by Van Henson, CASC. 2:30 p.m., Bldg. 219, room 163. Contact: Tiffany Ashworth, 4-3491.

Wednesday 31

ICST Seminar: "Seminar–Supercomputing at LLNL," by Kim Cupps, Integrated Computing & Communications High-Performance Systems. 2:30 p.m., Bldg. 219, room 163. Contact: Tiffany Ashworth, 4-3491

Technical Meeting Calendar

Monday 22

CENTER FOR APPLIED SCIENTIFIC COMPUTING (CASC) / INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)

"The FEniCS project: Automation and Algorithms for Finite Element Methods," by Robert Kirby, Department of Computer Science, University of Chicago. 10 a.m., Bldg. 451, room 1025,White Room. For more information, go to http://www.llnl.gov/casc/calendar.shtml. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: David Keyes, 2-1325, or Erica Dannenberg, 3-2167.

CHEMISTRY AND MATERIALS SCIENCE

"Development of Nanoparticle-Based Sensors for Localized Intracellular Chemical Measurements," by Chad Talley. 2 p.m., Bldg. 151, room 1209. Property protection area. Foreign national temporary building access procedures apply. Contact: Ted Tarasow, 3-7241, or Kathy Ricard, 3-8024.

INTEGRATED COMPUTING & COMMUNICATIONS DEPARTMENT

"Exploring Marthematics and Science With Mathematica," by Rob Knapp. 2 p.m., Bldg. 543 auditorium. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Mary Ann Chapeta, 4-4103.

Tuesday 23

CHEMISTRY AND CHEMICAL ENGINEERING DIVISION/ ENERGETIC MATERIALS CENTER–EXTREME CHEMISTRY

"Ultrafast Spectroscopy of Gold Nanoparticle Aggregates and Time-Resolved Fluorescence Probing of Non-Ionic Aqueous Triblock Copolymer Aggregates," by Christian Grant, postdoctoral applicant (Graboske Fellowship), Rutgers University. 2 p.m., Bldg. 151, room 1209. Foreign nationals may attend if approved security plan is on file, which includes Bldg. 151. Contact: Larry Fried, 2-7796, Kristine Ramirez, 3-4681, or Katie Thomas, 2-8050.

The deadline for the next Technical Meeting Calendar is noon Wednesday.

Please submit your meetings via the new Technical Meeting Calendar form on the Web, located at http://wwwr.llnl.gov/tmc/index.html

For information on electronic mail or the newsgroup llnl.meeting, contact the registrar at registrar@llnl.gov.

Grassroots collaboration of employees to coordinate Safety Fair

By Ken Rhodie

SAFETY AND ENVIRONMENTAL PROTECTION

"Your Environment, Your Safety, Your Health," is the theme of the 2005 Safety Fair to be held Thursday, Sept. 15, from 11 a.m. to 1:30 p.m. at the triage area in front of the Health Services building (Bldg. 663).

Three directorates including Engineering, Laboratory Services and Safety and Environmental Protection, are sponsoring this year's fair. The LLNL Grassroots Safety Collaboration, a group of 16 employee safety committees throughout the Laboratory, is coordinating the fair exhibits and all related activities.

More than 60 exhibits and demonstrations will be spread over the triage area, which is larger and more centrally located than the swimming pool area, site of previous fairs. Exhibits will cover a range of safety, health and environmental subjects and will be presented by Lab organizations as well as outside vendors.

Popular displays and demonstrations from past fairs will be included again this year, such as the Cycletrons, who will tune bikes, and the California Highway Patrol. The latest in ergonomic equipment will be shown, free chair massages will be offered and several health organizations will be represented and offer cholesterol, body fat composition and blood pressure checks. Nutrition information, including the new food pyramid, also will be available.

An added feature of this year's fair is an open house planned by the Health Services Department. Also new will be a broader range of environmental displays, including those devoted to hazardous household and electronics waste disposal. The Bay Area Air Quality District also will have a booth.

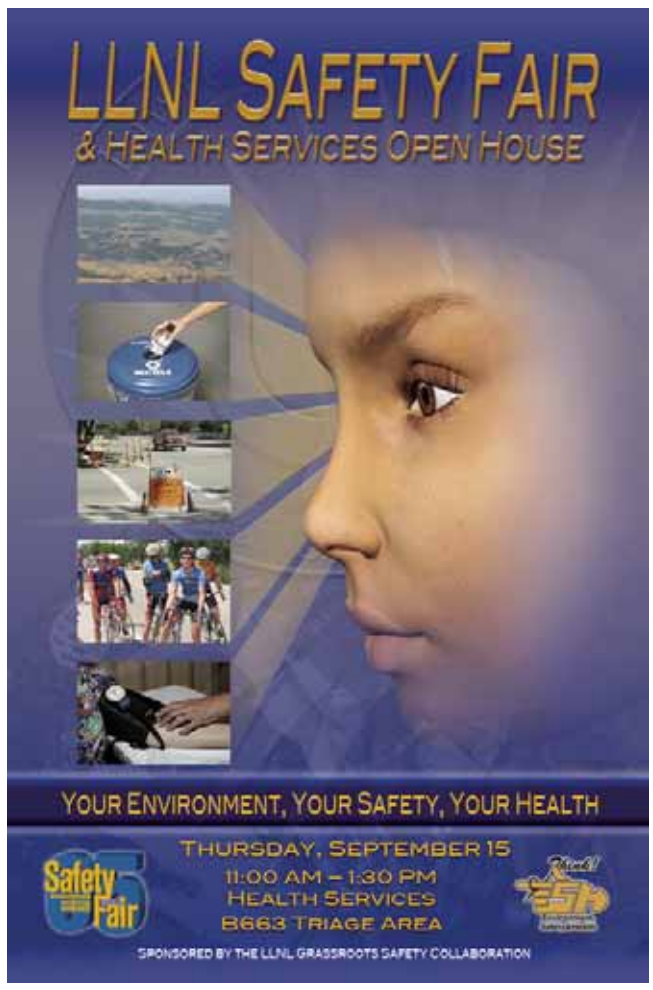
"Safety, health, and environmental topics are serious subjects, but this fair will be fun, too," said Bob Felicitas, safety officer for the Environmental Protection Department and chair of the LLNL Grassroots Safety Collaboration. He pointed out there will be music, jugglers and other entertainment. There also will be a food court where lunches will be sold.

The fair will be the first highly visible, Lab-wide effort for the collaboration since it was formed in March 2004.

According to Felicitas: "We joined together because we are all passionate about the same things: trying to reach employees with meaningful messages about safety; trying to get our managers involved in safety issues that we think are important; trying to help each other's committee improve and share ideas.

"We started with a handful of groups that were at different levels — some established, some just starting, others in between. We have just been trying to build each other up and help each other out," Felicitas explained. "We now have 16 members, and more who are considering forming groups and joining."

Felicitas said chairs of the various groups have been meeting regularly throughout the year. He is encouraged by the sustained interest people have shown and by the continuous flow of ideas that come from employees.



"What we're after is to build a strong safety culture across the Lab at the grassroots level," Felicitas said. "We believe we can do that by building a safety network and strengthening communication between organizations, working on common safety issues, sharing success stories and working together on annual goals and projects. The safety fair is an example of this type of effort."

SECURITY

Continued from page 1

management unit. UC police can assist employees with offsite domestic matters such as emergency protective orders and restraining orders.

Ted Sheppard of the UC police screened a seven-minute video produced by the Michigan State Police entitled, "Seven Signs of Terrorism": surveillance, elicitation, tests of security, acquiring supplies, suspicious persons that don't belong, dry runs or trial runs, and deploying assets or getting into position.

Livermore Police Chief Steve Krull characterized the Lab as a significant member of his community. Krull explained the dynamic partnership between the Laboratory and his department, emphasizing an information and intelligence exchange process called "360 degree reporting" that contributes to a secure community. He noted that terrorism is international in nature, but local in its execution and in its prevention. Krull added that "…an informed, engaged community" is a key to prevention, stating that employee vigilance "…doesn't end driving out the gate."

Chief Cyber-Security Officer Mark Graff explained that the Lab's cyber security is critical to national security. Graff noted that the Laboratory is both a direct and an indirect target of cyber attacks, more that six million of which are thwarted every year. He added that about 8 percent of cyber traffic is malicious code and 98 percent of attachments contain attack software.

Graff said: "Even our unclassified information, such as the Yellow Network, must be protected. And the Lab's firewall is not enough."

He urged employees to keep operating system and applications current and patched. He emphasized that it's no longer safe to run without antivirus or other measures. Graff closed by saying: "We must remain vigilant, especially with regard to the threat to — and from — computers used at home. Cyber attacks put you — and the nation—at risk."

NIF

Continued from page 1

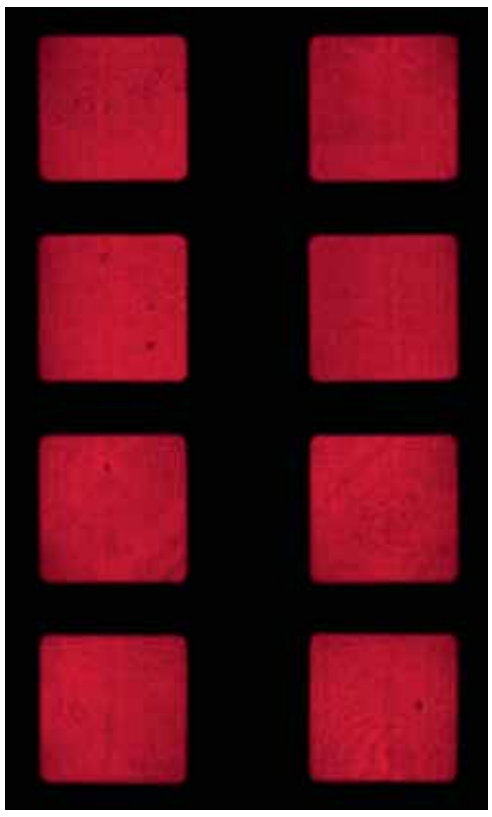
energy, exceeded design specifications.

In an earlier series of beam propagation experiments, one quad of four infrared beams were converted to ultraviolet, in a series of crystal slabs located just outside the target chamber. The energy output at the center of the chamber was measured at 16 kJ. Individually, one beam achieved 10.5 kJ of ultraviolet energy.

NIF shots are now controlled by newly designed automated computer shot control software dubbed HOTShots, for Hands Off Target Shots.

The program is now transitioning from its NIF Early Light (NEL) phase, and preparing for ignition experiments scheduled to begin in 2010. The first step involves installing new production hardware, including preamplifier units, as well as diagnostic systems.

Ultimately, NIF will consist of 192 laser beams, with a total energy capability of 1.8 megaJoules. At its current eight beams, it already is the world's largest and most energetic laser system.



A false-colored image of NIF's eight infrared beams during the milestone shot.

NONPROFIT ORG.
U.S. POSTAGE
PAID
LIVERMORE, CA
PERMIT NO. 154

Newsline
UC-LLNL
PO Box 808, L-797
Livermore, CA 94551-0808